

# Focus Areas to Target Additional Research, Demonstrations, and Outreach

---

The development of the Tributary Strategy to meet the newly established nutrient and sediment loading caps has shown that aggressive implementation of the current suite of approved BMPs is critical, requiring, in some cases, nearly a 100% participation in some sectors. Even with this degree of implementation, these current practices alone will not reach the nutrient and sediment reduction goals. *Maryland's Tributary Strategy Statewide Implementation Plan* needs to assume vigorous demonstration, outreach, and funding components to reach the level of adoption envisioned in the Tributary Strategy. The plan also needs to enact a serious research effort to verify the effectiveness of some key new technologies and management strategies and implement them in the near-term.

## Recommended Future Actions

### URBAN/SUBURBAN NONPOINT SOURCES

The State and local governments need to continue working with partners, such as the American Homebuilders Association, Builders for the Bay, LID Center, and urban planners, to identify and pilot cost effective retrofits in high impact subwatersheds. An immediate need is to target critical areas where septic systems play a significant role in nutrient impairment. The State should leverage the Chesapeake Bay Restoration Fund with private and public grants and establish partnerships with

university researchers and septic system vendors to set up commercial and residential demonstration sites accompanied with widespread outreach and education to local and county officials, real estate developers, and homeowner associations.

### AGRICULTURAL NONPOINT SOURCES

Research, demonstration, and outreach in this area need to focus on technologies and strategies that begin addressing the long-range goal of nutrient balancing at the regional and subwatershed level. Critical innovations that need investment and are ripe for public and private partnerships must target animal and crop production in the following key areas:

- **Manure Management:** Recent workshops of scientific experts are reaching consensus that feed management is the single most promising and cost effective approach for reducing excess manure nutrients. Maryland has already instituted phytase management in chicken feed with a demonstrated 16% reduction of phosphorus in the manure. The State and university must begin a large scale educational assistance effort with NRCS' technical expertise to adopt and implement the NRCS Feed Management Conservation Standard that provides EQIP monies to participating producers.

The educational effort partnering with dairy and beef growers must also emphasize the priority the State gives to these practices, particularly in those critical subwatershed areas that are impacted the most by manure runoff. A companion research effort should coordinate the university's and the USDA ARS's ongoing animal diet research for poultry, dairy, and beef to provide the most comprehensive and up-to-date information for use by field extension personnel. Other priorities for manure-related research and demonstrations that promise long-range results include market development for manure-based products initially supported by State use and purchasing goals and educational campaigns and the use of manure as feedstock for bio-energy demonstration pilots.



improve both the effectiveness and adoption. Additional funding, demonstration, and outreach programs must be established throughout the State to reach the near 100% level of implementation.

#### POINT SOURCES

ENR technology is largely available and understood for wastewater treatment plants and could be used by smaller facilities to maintain loads established in the ENR Strategy. For those facilities where such costs are prohibitive, the State, Federal and local governments need to invest in research that increases cost effectiveness on a smaller scale and that looks to pollution prevention strategies for waste streams entering the facilities, especially in new or expanding communities. Education and outreach should address those pollution prevention opportunities at the local community level and should be coordinated with urban and suburban stormwater and wastewater planning. Immediate educational efforts could focus on critical subwatersheds, such as areas on the lower Eastern Shore, where high water tables, increasing flooding, and new development are converging.

- CROP PRODUCTION:** The *Maryland Tributary Strategy* calls for an extensive adoption of new BMP technology, especially in the area of precision agriculture and cover crops. A significant investment is necessary in outreach and demonstration, especially to ensure implementation by farmers at a critical mass level in the necessary key subwatersheds. Demonstration pilots and broad-scale educational efforts must include types and availability of techniques and equipment for balancing fertilizer application, yield- and cost-benefits (these include sensors, injections systems, rates, etc.). Research into optimum cover crop varieties, timing, and opportunities for their use as an additional income stream, such as hulless barley for ethanol use, could vastly